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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/816,643	03/23/2001	Seiyo Nakashima		6862

26021 7590 04/10/2003
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EXAMINER

KACKAR, RAM N

ART UNIT	PAPER NUMBER
1763	14

DATE MAILED: 04/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/816,643

Applicant(s)

NAKASHIMA ET AL.

Examiner

Ram N Kackar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-9 and 13-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9 and 13-24 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claim 21 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 20. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 13 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In this instance the reference to arbitrary abutting position is not disclosed in the original claims 2, 4, 5, 6 and 7 as stated by the applicant or specifications.

4. the following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-2, 4-9, 14, 15, 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims cite process limitations along with apparatus limitation. Reference to a process of moving susceptor and heater so that they maintain a distance, which is constant, applies to claims 1-2, 4-9 and 15. Claim 14 refers to the process of

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lifting and lowering the substrate while claim 19 refers to the process of heating while being lifted or lowered.

Claim Rejections - 35 USC § 101

6 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-2, 4-9, 14, 15, 19 are rejected under 35 U.S.C. 101 also as these claims overlap two different statutory classes of invention.

Claim Rejections - 35 USC § 102

7 The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8 Claims 1-2, 4-8, 13-19 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by MacLeish et al (US5653808). MacLeish et al disclose a processing chamber (Fig 2), a susceptor (Fig 2-50), a heating unit disposed below the susceptor (Fig 2-44), the susceptor capable of lifting, lowering and being rotatable with respect to heating unit (Col 4 line 65 to Col 5 line 5).

Regarding claim 1, 8 and 15 the susceptor and the heating unit are capable of being lifted and lowered together so that the distance between the two may be kept constant (Col 5 line 34-37).

Regarding claim 4, 5, 16 and 17 the apparatus for lifting and lowering the substrate is partly disposed inside the susceptor (Fig 1-54) and partly outside (Fig 1-48).

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Regarding claim 6 the susceptor has a central member (Fig 2) and an attached peripheral member (Fig 2- 50a) and the lifting apparatus is attached to the central member (Fig 2-48).

Regarding claim 7 and 19 the heating member is in three independently controllable parts so that at least one may correspond to the central part and one may correspond to the peripheral part (Col 4 56-60).

Regarding claim 8, in addition to the disclosure in paragraph 1, MacLeish et al also disclose a structure of susceptor so that when a substrate sits on it, its upper surface will be substantially flush with the peripheral part (Fig 3b).

Regarding claim 13, lift and lowering apparatus as being comprised of susceptor and housing it does get restricted in lowering at some point near the bottom of the chamber.

Regarding claim 22 the parts disclosed are in the same order as claimed. Nevertheless re arrangement of parts has been held obvious.

9 Claims 20 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Nomura, Hishashi (JP 05291154). Nomura Hishashi discloses a processing chamber (Fig 3), a susceptor (2), a heating unit disposed below the susceptor (3), the susceptor capable of lifting, lowering and being rotatable with respect to heating unit (Abstract), a shower head for gas (14) the lifting and lowering apparatus engaging in both heating and susceptor unit (Fig 3).

Claim Rejections - 35 USC § 103

10 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11 Claim 9 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacLeish et al (US5653808) in view of Okayama et al (US 6334983).

MacLeish et al do not disclose a member made of quartz being flush with upper surface of susceptor and disposed in an outer periphery of said susceptor.

Okayama et al disclose a quartz ring disposed on the susceptor at periphery and substantially flush with the upper surface of the susceptor (Fig 1-126 and Col 7 line 45-50) for focusing the plasma.

There fore it would have been obvious for one of ordinary skill to modify the susceptor of MacLeish et al with a quartz ring on the periphery so as to serve as a focus ring.

Regarding claim 23 the perimeter of susceptor helps prevent heat of the substrate in escaping out.

12 Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over MacLeish et al (US5653808). Further to discussion of claim 18 MacLeish et al disclose all the limitations of this claim except the thermocouples for sensing temperature.

However, MacLeish et al disclose IR sensors. It would have been obvious to use thermocouple sensor in view of the teaching that instead of IR sensor any other type could also be used (Col 6 lines 7-9).

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 703 305 3996. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703 308 1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

RK
April 7, 2003


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